

Borehole

41-02-07Log Event **A****Borehole Information**

Farm : <u>SX</u>	Tank : <u>SX-102</u>	Site Number : <u>299-W23-59</u>
N-Coord : <u>35,520</u>	W-Coord : <u>75,808</u>	TOC Elevation : <u>662.49</u>
Water Level, ft :	Date Drilled : <u>9/30/1954</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.313</u>	ID, in. : <u>8</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>101</u>	

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>4/26/1995</u>	Logging Engineer: <u>Kim Benham</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>33.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>4/27/1995</u>	Logging Engineer: <u>Kim Benham</u>
Start Depth, ft.: <u>97.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>58.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>4/28/1995</u>	Logging Engineer: <u>Kim Benham</u>
Start Depth, ft.: <u>32.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>59.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

41-02-07**Log Event A**

Analysis Information

Analyst : J.R. BrodeurData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 9/18/1995**Analysis Notes :**

This borehole was drilled in 1954 to a depth of 101 ft. No drilling records were found for the borehole, but one reference (Hanford Wells) indicates that the borehole was perforated throughout its length. This is consistent with other boreholes drilled in the 50's when the farm was first constructed.

The borehole casing thickness is not known, but is assumed to be 0.25 in. thick. The casing correction for that casing thickness was applied to the spectral gamma data.

The borehole was logged in three log runs: run 1 from 0 to 33.5 ft, run 2 from 97.5 to 58 ft, and run 3 from 32.5 to 59 ft. Field verification data showed good agreement between log runs.

Cs-137 was the only man-made radionuclide found in this borehole. It was detected at low concentrations essentially throughout the borehole. It is suspected to have traveled down the inside of the casing and may not represent the radionuclide concentration of the formation.

Natural gamma logs for this borehole show changes in concentration which reflect changes in lithology below 60 ft. The naturally occurring U-238 log shows a significant decrease in concentration for the third log run in the middle of the borehole. This is undoubtedly due to off-gassing of radon as a result of a change in the barometric pressure.

Log Plot Notes:

Three plots are provided for this borehole, including a Cs-137 log plot, a plot of the natural gamma-emitters, and a combination plot.

The Cs-137 log is provided as a separate plot to document the concentration and show the distribution. An estimation of the concentration error is shown as error bars representing the 95-percent confidence interval. The MDA values were calculated for every depth measurement location and are shown on the plot as open circles.

The natural gamma plot is made of logs of the naturally occurring K-40, U-238 and Th-232. These logs are provided to show geologic features and permit correlation of these data with other geologic information. The concentration error estimations for these data are also shown as error bars representing the 95-percent confidence intervals. MDA values are shown as open circles.

The combination plot shows the individual radionuclide concentrations and is provided to permit correlation of the data between logs and with other boreholes. The plot includes the Cs-137 log, the natural gamma logs, the total gamma log calculated from the spectral gamma data, and the Tank Farms gross gamma log obtained from the NaI- based logging system.